

Site and Company/Owner Name: Utility Trailer Manufacturing Company**Description of Facility:**

Utility Trailer Manufacturing Company (Utility Trailer) fabricates truck trailers in Clearfield, Davis County.

NSPS, NESHAP, and MACT regulations do not apply to this source. This source is a synthetic minor source.

Recent Permitting Actions:

Utility Trailer currently operates under Approval Order DAQE-AN101560016-12. This Approval Order reduced their VOC emission limitation to 99 tpy, bringing them below major status thresholds. Currently Utility Trailer must comply with the requirements of the UAC R307-340 Ozone Nonattainment and Maintenance Area: Source Coating Processes.

Existing PTE (tpy) / Allowable Emissions

PM₁₀	PM_{2.5}	SO₂	NOx	VOC	CO
21.48	21.48	0.22	26.83	99.0	5.47

Emissions Information / Discussion

Based on DAQ's 2008 actual emission inventory for the spray painting and wipe down cleaning operations at Utility Trailer, VOC emissions were estimated, based on 2000 hours of operation, as 37.11 tpy and 16 tpy respectively.

VOC RACT Options**Description of Options:**

Utility Trailer has identified the following available control technologies:

1. Rotary Concentrator
2. Regenerative Thermal Oxidation (RTO)

Technical Feasibility:

Rotary Concentrator: Rotary Concentrator Systems are hybrid air pollution control systems designed to efficiently remove and destroy air pollutants from a process exhaust air stream. The polluted air passes through a rotating wheel where the air pollutants are adsorbed onto a hydrophobic Zeolite media and then removed and destroyed by use of an oxidizer.

During operation, air pollutants, captured from the process via a ductwork collection system, are passed through a high-efficiency filter as particulate can damage the

concentrator wheel media. Once filtered, the polluted air passes through the rotating concentrator wheel where the air pollutants are adsorbed onto the hydrophobic Zeolite media. A slipstream of this air, approximately 10%, is routed through a cooling plenum while the remainder is routed directly to the common exhaust stack.

RTO: RTO information provided via various sources, RTOs provide efficiency and effective VOC control for a wide range of processes. Thermal Oxidizers use recovered energy to pre-heat incoming process air to oxidation temperatures. This significantly lowers overall operating costs. A regenerative thermal oxidizer is particularly effective for process streams with low solvent loading.

Economic Feasibility:

Rotary Concentrator: Utility Trailer is claiming 97% VOC removal, however, only 62% of the total VOC emissions can be captured at their location. The resulting VOC reduction is approximately 60.14% with an estimated total capital investment of \$ 6,579,296 and an annualized cost of \$997,293 per year.

Based on 2008 actual emission inventory, the \$/ton for VOC removal is:

$$\$997,293 / (37.109 \text{ tpy VOC} * 60.14\%) = \$997,293 / 22.32 \text{ tpy} = \$ 44,687/\text{ton removal}$$

VOC emissions would be reduced from 37.11 tpy to 14.79 tpy. At 2000 hours per year the hourly rate would be 14.79 lb/hr but the emission rate is entirely based on what materials they are painting with which will vary month to month and year to year.

In the September 2008 Control Techniques Guidelines for Miscellaneous Metal and Plastic Parts Coatings document prepared by the EPA, they recommend VOC limitations based on per gallon of coating. This seems to be a reasonable bases for limiting Utility Trailer VOC emissions, with the exception of mineral spirits & MPK (these are alternative BACT for HAP emitting materials).

Regenerative Thermal Oxidation (RTO): Utility Trailer is claiming 98% VOC removal, however, only 62% of the total VOC emissions can be captured at their location. The resulting VOC reduction is approximately 60.76% with an estimated total capital investment of \$ 5,616,473 and an annualized cost of \$1,435,832 per year.

Based on 2008 actual emission inventory, the \$/ton for VOC removal is:

$$\$1,435,832 / (37.109 \text{ tpy VOC} * 60.76\%) = \$1,435,832 / 22.55 \text{ tpy} = \$ 49,827/\text{ton removal}$$

VOC emissions would be reduced from 37.11 tpy to 14.56 tpy. At 2000 hours per year the hourly rate would be 14.56 lb/hr but the emission rate is entirely based on what materials they are painting with which will vary month to month and year to year.

Concentrator and RTO: The resulting VOC reduction is approximately 58.90% with an estimated total capital investment of \$ 7,622,356 and an annualized cost of \$1,123,476 per year.

Based on 2008 actual emission inventory, the \$/ton for VOC removal is:

$$\text{\$1,123,476} / 37.109 \text{ tpy VOC} * 58.90\% = \text{\$1,123,476} / 21.86 \text{ tpy} = \text{\$ 51,401/ton removal}$$

VOC emissions would be reduced from 37.11 tpy to 15.25 tpy. At 2000 hours per year the hourly rate would be 15.25 lb/hr but the emission rate is entirely based on what materials they are painting with which will vary month to month and year to year.

Results of Analysis

The following was determined to represent RACT for this source:

Utility Trailer has modified their Approval Order, taking VOC emission limits to make them a synthetic minor source. Currently Utility Trailer must comply with the existing R307-340 ozone surface coating requirements. The proposed UAC R307-350 established for area sources of miscellaneous metal parts and products coating. Compliance with these rules is established as RACT for Utility Trailer.

Title and Description of Chosen Options

- (1) Utility Trailer shall comply with the requirements of UAC R307-350: Miscellaneous Metal Parts and Products Coating.